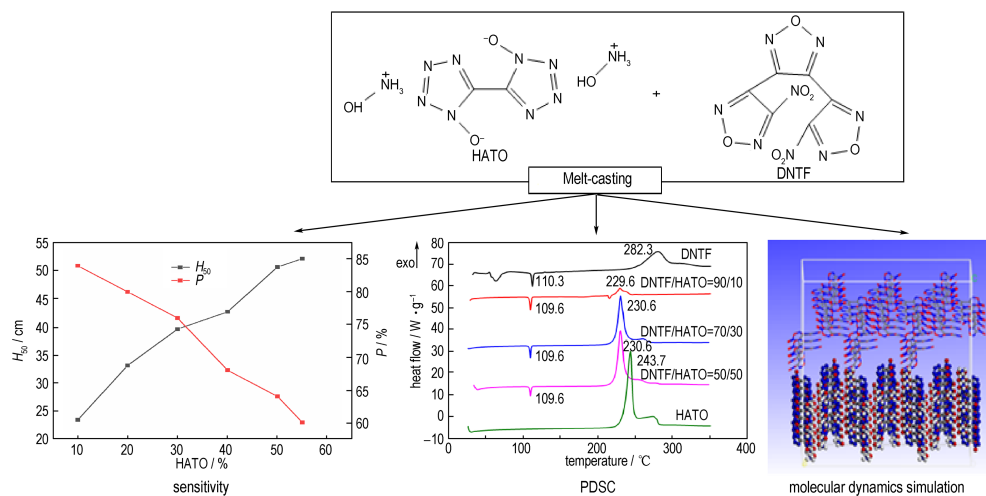


Safety Performances and Molecular Dynamics Simulation of DNTF/HATO

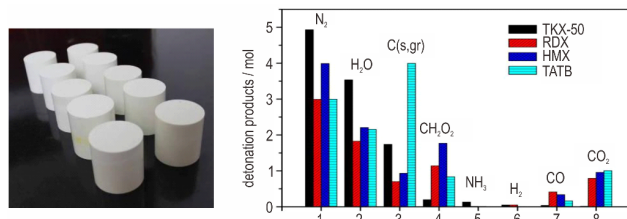


The impact, friction, shock wave and thermal sensitivity of DNTF/HATO with various proportions were studied, the mechanism of reduced sensitivity for DNTF/HATO was discussed by molecular dynamics simulation.

WANG Hao, GAO Jie, TAO Jun, LUO Yi-ming, JIANG Qiu-li

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2019,27(11):897-901

Detonation and Safety Performance of TKX-50 Based PBX



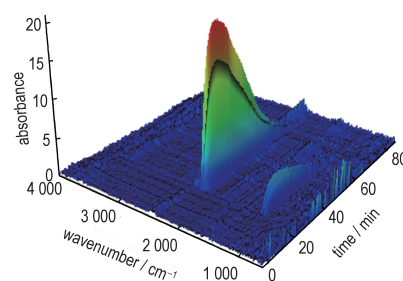
LIU Jia-hui, FAN Gui-juan, LU Xiao-jun, XU Rong,

YANG Guang-cheng, YANG Zhi-jian

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2019,27(11):902-907

The detonation and safety performance of TKX-50 based PBXs were systematically studied.

Effect of AP on the Thermal Decomposition Mechanism of HATO



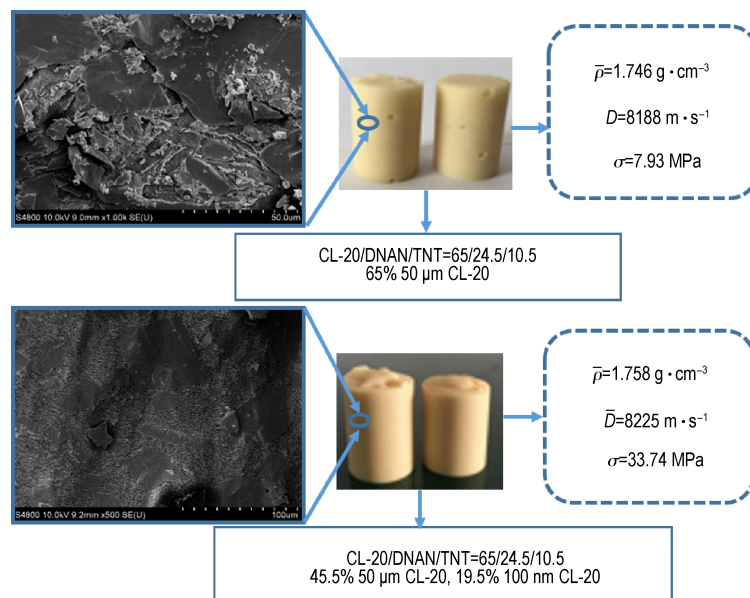
ZHANG Kun, TAO Jun, WANG Xiao-feng, CHANG Jing,

BI Fu-qiang, JIANG Fan, YANG Xiong

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2019,27(11):908-914

Based on the thermal decomposition characteristics, gas products and condensed phase changes of HATO and HATO/AP blends obtained by combination of thermogravimetry-mass spectrometry-Fourier transform infrared spectroscopy (TG-MS-FTIR), differential scanning calorimetry(DSC) and Fourier transform infrared spectroscopy (FTIR), the effect of AP on the thermal decomposition mechanism of HATO was discussed.

Effects of Particle Gradation of Micro-nano CL-20 on the Properties of Eutectic DNAN/TNT-Based Castable Explosives

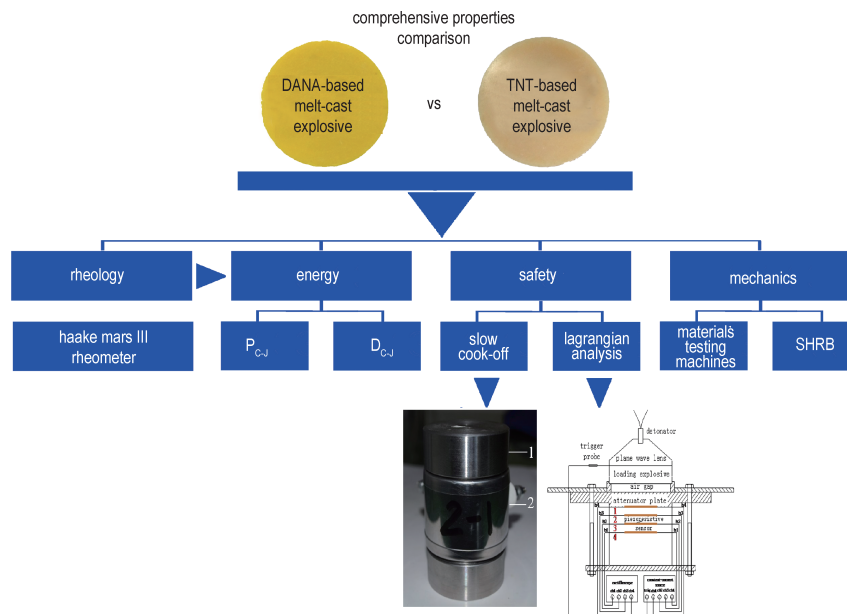


NING Ke, ZHANG Zhe, XIAO Lei, GUO Shuang-feng,
GOU Bing-wang, YANG Chao-yu, HU Yu-bing, HAO Ga-zi,
JIANG Wei

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2019,27(11):915–922

The modified CL-20/DNAN/TNT (65/24.5/10.5) castable explosive with micro-nano CL-20 particle gradation was successfully prepared. It has much better superiority of smooth surface, low defect, good detonation velocity and mechanical property than that of unmodified one.

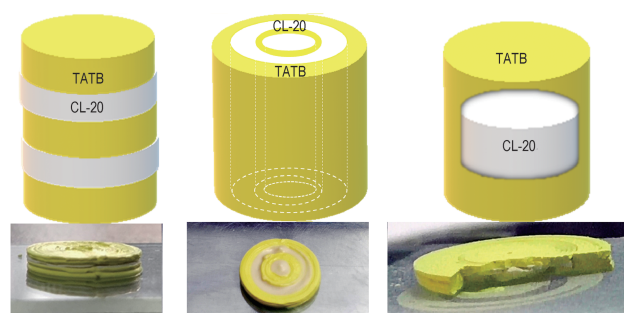
Comparison of Comprehensive Properties for DNAN and TNT-Based Melt-cast Explosives



ZHU Dao-li, ZHOU Lin, ZHANG Xiang-rong, XING Ruo-ting
Chinese Journal of Energetic Materials (Hanneng Cailiao),
2019,27(11):923–930

A series of related experiments on rheology, energy, safety and mechanics were conducted to compare the comprehensive properties of DNAN and TNT-based melt-cast explosives.

Preparation of CL-20/TATB Composite Charge Structure by 3D Printing Technology

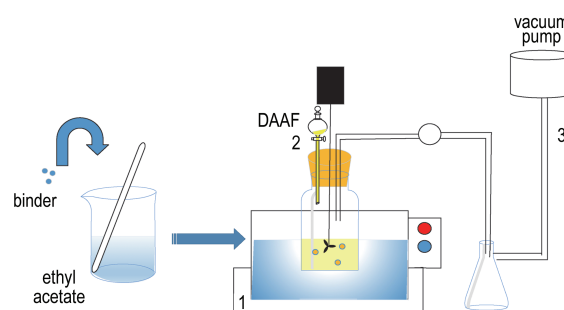


HUANG Jin, WANG Jun, MAO Yao-feng, XU Rui-juan,
ZENG Gui-yu, YANG Zhi-jian, NIE Fu-de

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2019,27(11):931–935

Three different TATB/ CL-20 composite charge structures were designed and prepared by 3D printing technology.

Thermal Safety of DAAF-Based Insensitive Polymer Bonded Explosives

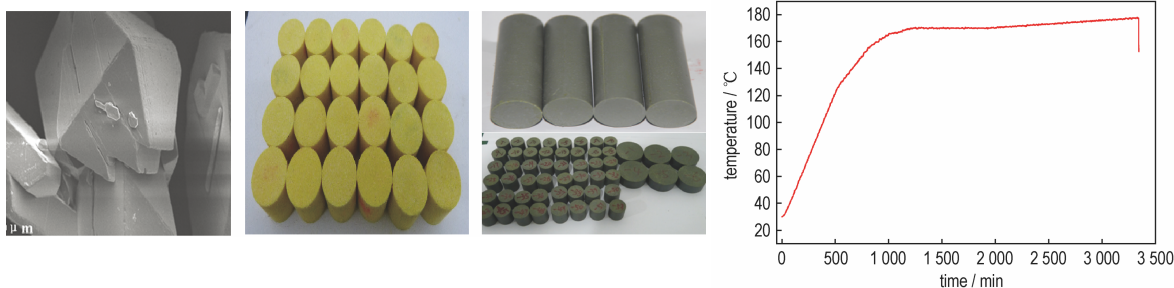


WU Bi-dong, XIE Jia-ni, LI Xu-yang, LIU Shu-jie, AN Chong-wei,
WANG Jing-yu

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2019,27(11):936–941

Three DAAF-based PBXs were prepared by water suspension method. The SEM, thermal analysis, XRD and mechanical sensitivity were used to compare the thermal decomposition characteristics, impact sensitivity, friction sensitivity and roasting characteristics of the samples. DAAF/ F_{2311} had better thermal stability and satisfied the safety requirements of cook-off behavior for insensitive ammunition.

Safety Performance of FOX-7 Based Casting PBX



XIE Xiao, WANG Shu-cun, HUANG Chuan, LIU Tao,
ZHENG Bao-hui, HUANG Jing-lun, LI Shang-bin

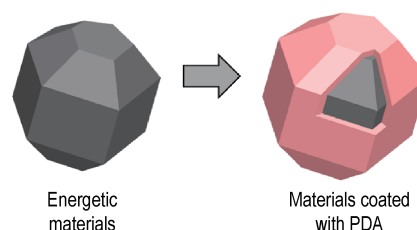
Chinese Journal of Energetic Materials (Hanneng Cailiao),
2019,27(11):942–948

A certain amount of FOX-7 was substituted for HMX in the HMX-based PBX formulation GO-1 in order to improve its safety performance. Recrystallized FOX-7 particles with higher crystal quality were obtained. The influence of FOX-7 on the thermal stability, mechanical sensitivity, shock wave sensitivity and electrostatic spark sensitivity of the formulation was studied.

Bioinspired Improving Interfacial Performances of HMX, TATB and Aluminum Powders with Polydopamine Coating

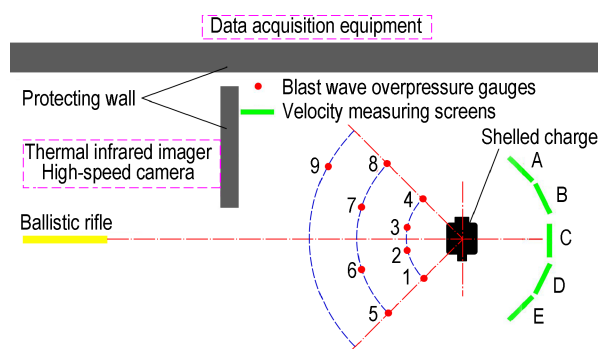
ZHU Qing, WU Shu-li, XIAO Chun, XIE Xiao, LI Shang-bin,
LUO Guan

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2019,27(11):949–954



The HMX, TATB and aluminum particles were coated with thin and robust polydopamine by a simple immersing process. The mechanical properties of the coated particles were improved due to the enhanced wettability and active groups for further interfacial reaction.

Response Characteristics of Cylindrical Shelled Propellant Charges Under Bullet Impact



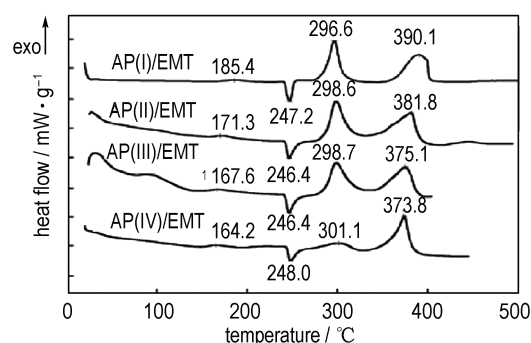
CUI Hao, GUO Rui, MAO Xiao-xiang, XU Jin-sheng, GU Xiao-hui,
LIU Rong-zhong, SONG Pu

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2019,27(11):955–960

In the test, blast wave overpressure gauges measured air overpressure at different positions and azimuths, velocity measuring screens measured shell fragment velocity. Besides, the high-speed camera recorded the response of the shelled charge under the impact of a 12.7 mm bullet.

Study on Decreasing the Mechanical Sensitivity of HTPB Propellant with High Burning Rate

Content of EMT/wt%	Impact sensitivity I_{50} / J		Friction sensitivity / %	
	Before adding curing agent	End of mixing	Before adding curing agent	End of mixing
0.5	24.0	17.4	32	20
1.0	14.8	12.6	40	44
3.0	14.1	10.0	72	48
0.5	25.1	11.5	40	16
1.0	12.6	7.56	72	72
3.0	9.6	7.60	80	76

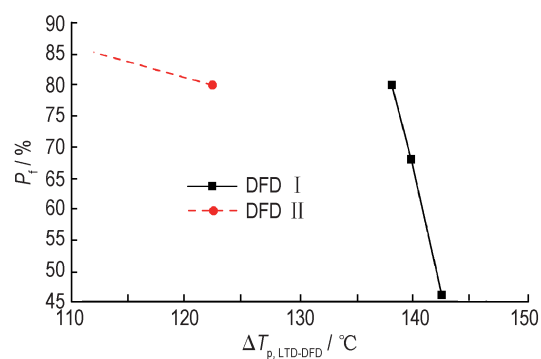
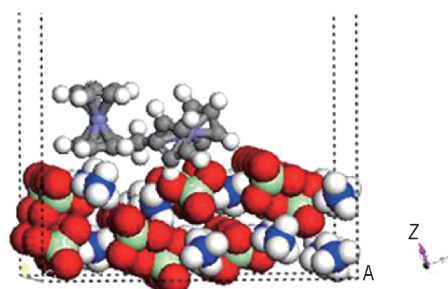


The effects of liquid ferrocene combustion catalyst EMT and AP on mechanical sensitivity of HTPB propellant with high burning rate were studied by means of DSC-TG thermal analysis and mechanical sensitivity test. The effects of coated fine AP and combustion catalyst GRCJ on the mechanical sensitivity of high burning rate propellant were studied.

PANG Ai-min, LIU Xue

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2019,27(11):961–966

Influence Mechanism of Molecular Structure on Mechanical Sensitivity of Fine AP and Double-core Ferrocene Derivative Mixture



ZHOU Xing, ZHANG Wei, DENG Lei, JIANG Ben-zheng,
ZHOU Jun-hong, YANG Jun

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2019,27(11):967–973

The correlation of molecular structure of double-core ferrocene derivatives (DFDs) with mechanical sensitivity of fine AP and DFD mixture was studied. Combined with calculation chemistry and experiments, the trigger mechanisms of impact and friction sensitivity of the mixture were different.

Principles and Methods for Insensitive Munitions Hazard Mitigation Design

HUANG Heng-jian, CHEN Ke-quan, CHEN Hong-xia, CHEN Xiang,
SONG Yi-dan, LU Zhong-hua, LI Xing-long, KOU Jian-feng

Chinese Journal of Energetic Materials (Hanneng Cailiao),
2019,27(11):974–980

The principles and methods for hazard mitigation of munitions were summarized on the basis of overviewing related research progress abroad. Three researching directions to improve safety of munitions are recommended.

Executive editor: WANG Yan-xiu GAO Yi JIANG Mei ZHANG Qi